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ALL	alicyclic epoxy and us-6048953-\$.did.	1	<u>L7</u>
ALL	14 and cationic catalyst	2	<u>L6</u>
ALL	14 and catalyst	31	<u>L5</u>
ALL	11 and perfluoroalkyl	37	<u>L4</u>
ALL	11 same perfluoroalkyl	3	<u>L3</u>
ALL	11 same recording	35	<u>L2</u>
ALL	alicyclic epoxy	2259	<u>L1</u>

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KVOC

Document Number 7

Entry 7 of 10

File: DWPI

Dec 7, 1999

DERWENT-ACC-NO: 1999-529678

DERWENT-WEEK: 200008

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TITLE: Composition comprising aromatic epoxy resin containing perfluoroalkyl groups and cationic polymerization catalyst for coating discharge openings of inkjet recording heads

INVENTOR: IMAMURA, I; NOGUCHI, H ; SATO, T ; SHIMOMURA, A

PRIORITY-DATA:

1998JP-0057636

March 10, 1998

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 11335440 A	December 7, 1999	N/A	016	C08G059/20
EP 942025 A2	September 15, 1999	E	030	C08G059/30

INT-CL (IPC): ~~B05D 1/00~~; B41J 2/135; B41J 2/16; C08G 59/20; C08G 59/30; C08G 59/68; C08J 7/04; C09D 163/00; C09K 3/18; G03F 7/038

ABSTRACTED-PUB-NO: EP 942025A

BASIC-ABSTRACT:

NOVELTY - An epoxy resin composition containing a fluorine-containing aromatic epoxy resin having in one molecule at least one 6-12 C perfluoroalkyl group and at least one epoxy group and a cationic polymerisation catalyst.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) surface treatment processes comprising:

(a) applying and drying the resin composition, irradiating with an activation energy ray through a mask, dissolving and removed the non- irradiated part of the resin and optionally post-curing; or

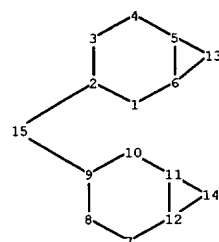
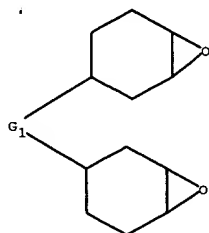
(b) irradiating and curing of the applied resin over the whole area followed by selectively irradiating the cured composition with a breaking activation energy ray to partly remove the cured composition and optionally post-curing;

(2) an inkjet recording head in which at least the discharge opening portion of the discharge opening surface is coated with a cured film of the composition; and

(3) inkjet apparatus incorporating the inkjet recording head.

USE - The composition is used to produce water repellent coatings, especially for inkjet recording heads (claimed)

ADVANTAGE - The coating gives an abrasion resistant surface with good adhesion and ink repellence which are not impaired by polar organic solvents present in the recording liquid.



chain nodes :

15

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14

chain bonds :

2-15 9-15

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 5-13 6-13 7-8 7-12 8-9 9-10 10-11
11-12 11-14 12-14

exact/norm bonds :

1-2 1-6 2-3 2-15 3-4 4-5 5-6 5-13 6-13 7-8 7-12 8-9 9-10
9-15 10-11 11-12 11-14 12-14

G1:C,O,S,Si,Cy

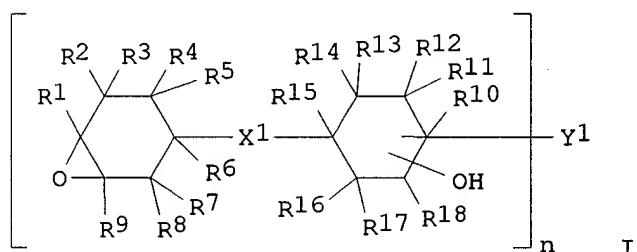
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom
10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:CLASS

N 131:229560
 TI Curable polyfunctional epoxy resin compositions
 IN Tachikawa, Hiroyuki; Tominaga, Nobuhide; Saito, Seiichi; Nagayama, Nobuhiro
 PA Asahi Denka Kogyo K. K., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C08G059-20
 ICS C08L063-00
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 11255863	A2	19990921	JP 1998-55305	19980306
GI					



AB The compns. contain polyfunctional epoxy compds. I [R1-R18 = H, halogen, (halogen- or O-contg.) hydrocarbyl, (substituted) alkoxy; X1 = C1-8 alkylidene, O, S, NH, SO, SO2, CBr2, C(CBr3)2, C(CF3)2; Y1 = n-valent Ph or carboxylic acid residue; n = 2-20]. The compns., providing cured products with high glass-transition temp. (Tg), high vol. resistivity, and

low dielec. const., are used for build-up elec. insulating materials in printed circuits showing improved adhesion to substrates. Thus, a compn. of 1.2:0.4 (mol) 2,2-bis(3,4-epoxycyclohexyl)propane-bisphenol A copolymer

100, methyltetrahydrophthalic anhydride 44.3, amine crosslinking accelerator 0.55, F-contg. surfactant (Fluorad FC 430) 0.07, and silica as

filler 43.5 parts was applied on Al plates, heated at 80.degree. for 5 min, and baked at 150.degree. for 30 min to give test pieces having vol. resistivity 1.4 .times. 10¹⁵ .OMEGA.-cm, Tg 170.degree., and water absorption 0.4%.

ST curable polyfunctional epoxy resin compn; high vol resistivity epoxy resin

compn; low dielec const epoxy resin compn; elec insulator build up circuit board

IT Nitrile rubber, preparation

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or

engineered material use); PREP (Preparation); USES (Uses)
(carboxy-terminated, CTBN 1300X9, polymer with
bis(epoxycyclohexyl)propane and methyltetrahydrophthalic anhydride;
curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT Electric insulators
Heat-resistant materials
Printed circuit boards
(curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT Epoxy resins, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT Surfactants
(in curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT Butadiene rubber, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
engineered material use); PREP (Preparation); USES (Uses)
(of 1,2-configuration, carboxy-terminated, Nisso PB-C 1000, polymer
with bis(epoxycyclohexyl)propane and methyltetrahydrophthalic
anhydride;
curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT **Fluoropolymers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(surfactants; in curable polyfunctional epoxy resin compns. for elec.
insulators in build-up elec. circuit boards)

IT 9003-17-2P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
engineered material use); PREP (Preparation); USES (Uses)
(butadiene rubber, of 1,2-configuration, carboxy-terminated, Nisso

PB-C 1000, polymer with bis(epoxycyclohexyl)propane and
methyltetrahydrophthalic anhydride; curable polyfunctional epoxy resin
compns. for elec. insulators in build-up elec. circuit boards)

IT 87301-62-0
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agents; curable polyfunctional epoxy resin compns. for
elec. insulators in build-up elec. circuit boards)

IT **14513-43-ODP**, 2,2-Bis(3,4-epoxycyclohexyl)propane, reaction
products with carboxy-modified nitrile rubber and
methyltetrahydrophthalic
anhydride **243120-73-2P**, 2,2-Bis(3,4-epoxycyclohexyl)propane-
bisphenol A-methyltetrahydrophthalic anhydride copolymer **243120-74-3P**,
Bisphenol A-methyltetrahydrophthalic anhydride-YP-90 copolymer
243120-75-4P, 2,2-Bis(4-aminophenyl)propane-2,2-bis(3,4-
epoxycyclohexyl)propane-bisphenol A copolymer **243120-76-5P**,
2,2-Bis(3,4-epoxycyclohexyl)propane-bisphenol A-formaldehyde-phenol
copolymer **243120-77-6P**, 2,2-Bis(3,4-epoxycyclohexyl)propane-
bisphenol A copolymer **243459-31-6P**
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
engineered material use); PREP (Preparation); USES (Uses)
(curable polyfunctional epoxy resin compns. for elec. insulators in
build-up elec. circuit boards)

IT 7631-86-9, Silica, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (fillers; curable polyfunctional epoxy resin compns. for elec.
 insulators in build-up elec. circuit boards)

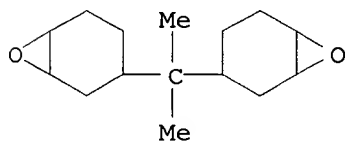
IT 9003-18-3P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (nitrile rubber, carboxy-terminated, CTBN 1300X9, polymer with
 bis(epoxycyclohexyl)propane and methyltetrahydrophthalic anhydride;
 curable polyfunctional epoxy resin compns. for elec. insulators in
 build-up elec. circuit boards)

IT 11114-17-3, Fluorad FC 430
 RL: MOA (Modifier or additive use); USES (Uses)
 (surfactant; in curable polyfunctional epoxy resin compns. for elec.
 insulators in build-up elec. circuit boards)

IT **14513-43-0DP**, 2,2-Bis(3,4-epoxycyclohexyl)propane, reaction
 products with carboxy-modified nitrile rubber and
 methyltetrahydrophthalic
 anhydride **243120-73-2P**, 2,2-Bis(3,4-epoxycyclohexyl)propane-
 bisphenol A-methyltetrahydrophthalic anhydride copolymer
243120-75-4P, 2,2-Bis(4-aminophenyl)propane-2,2-bis(3,4-
 epoxycyclohexyl)propane-bisphenol A copolymer **243120-76-5P**,
 2,2-Bis(3,4-epoxycyclohexyl)propane-bisphenol A-formaldehyde-phenol
 copolymer **243120-77-6P**, 2,2-Bis(3,4-epoxycyclohexyl)propane-
 bisphenol A copolymer **243459-31-6P**
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or
 engineered material use); PREP (Preparation); USES (Uses)
 (curable polyfunctional epoxy resin compns. for elec. insulators in
 build-up elec. circuit boards)

RN 14513-43-0 CAPLUS

CN 7-Oxabicyclo[4.1.0]heptane, 3,3'-(1-methylethylidene)bis- (9CI) (CA
 INDEX
 NAME)



RN 243120-73-2 CAPLUS

CN 1,3-Isobenzofurandione, 3a,4,7,7a-tetrahydromethyl-, polymer with
 3,3'-(1-methylethylidene)bis[7-oxabicyclo[4.1.0]heptane] and
 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

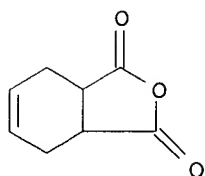
CM 1

CRN 26590-20-5

CMF C9 H10 O3

CCI IDS

CDES 8:ID

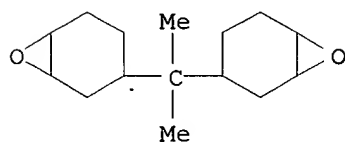


D1-Me

CM 2

CRN 14513-43-0

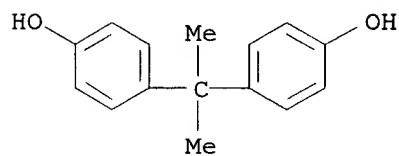
CMF C15 H24 O2



CM 3

CRN 80-05-7

CMF C15 H16 O2



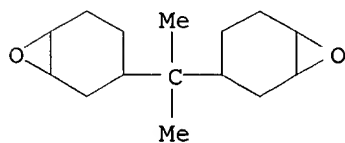
RN 243120-75-4 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 4,4'-(1-methylethylidene)bis[benzenamine] and 3,3'-(1-methylethylidene)bis[7-oxabicyclo[4.1.0]heptane] (9CI) (CA INDEX NAME)

CM 1

CRN 14513-43-0

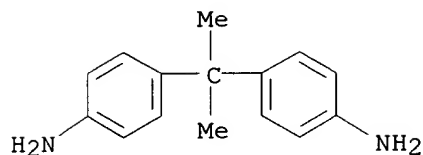
CMF C15 H24 O2



CM 2

CRN 2479-47-2

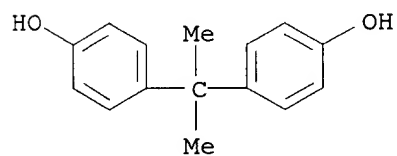
CMF C15 H18 N2



CM 3

CRN 80-05-7

CMF C15 H16 O2



RN 243120-76-5 CAPLUS

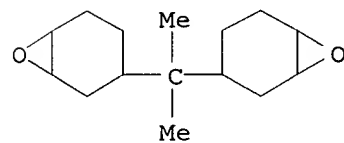
CN Formaldehyde, polymer with 3,3'-(1-methylethylidene)bis[7-oxabicyclo[4.1.0]heptane], 4,4'-(1-methylethylidene)bis[phenol] and phenol

(9CI) (CA INDEX NAME)

CM 1

CRN 14513-43-0

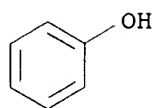
CMF C15 H24 O2



CM 2

CRN 108-95-2

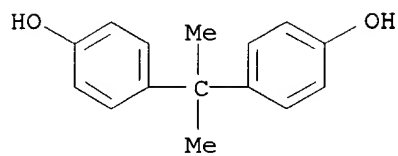
CMF C6 H6 O



CM 3

CRN 80-05-7

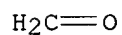
CMF C15 H16 O2



CM 4

CRN 50-00-0

CMF C H2 O



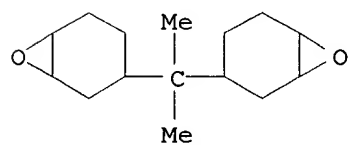
RN 243120-77-6 CAPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 3,3'-(1-methylethylidene)bis[7-oxabicyclo[4.1.0]heptane] (9CI) (CA INDEX NAME)

CM 1

CRN 14513-43-0

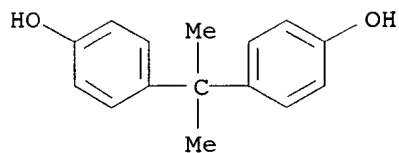
CMF C15 H24 O2



CM 2

CRN 80-05-7

CMF C15 H16 O2



RN 243459-31-6 CAPLUS
 CN 1,2-Benzenediol, 4,4'-[methyl(1-methylethyl)cyclohexanediyl]bis-, polymer
 with 3,3'-(1-methylethylidene)bis[7-oxabicyclo[4.1.0]heptane] and
 4,4'-(1-methylethylidene)bis[phenol] (9CI) (CA INDEX NAME)

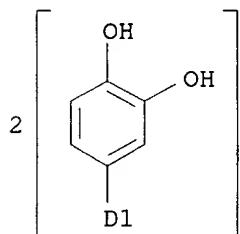
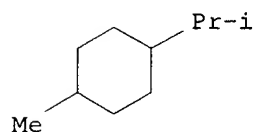
CM 1

CRN 243459-30-5

CMF C22 H28 O4

CCI IDS

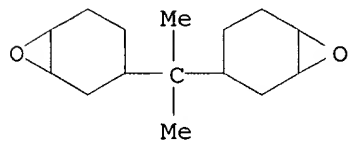
CDES *



CM 2

CRN 14513-43-0

CMF C15 H24 O2



CM 3

CRN 80-05-7

CMF C15 H16 O2

